

Common Name: **Nassau Grouper**



Photograph by Stephania Bolden, NOAA Protected Resources Division.

Scientific Name: *Epinephelus striatus*

Area of Concern: Western Atlantic: south Atlantic and Caribbean

Year First Listed as a "Species of Concern": 1991

Species Description:

The Nassau grouper is a top-level predator found from inshore to about 100 m. Adults are generally found near shallow high-relief coral reefs and rocky bottoms to a depth of at least 90 m; juveniles (25-150 mm TL) have been found in and around coral clumps covered with macroalgae (*Laurencia* spp.) and over seagrass beds. Nassau grouper are characterized by 5 dark brown vertical bars on a pale tan or gray body, black dots around the eye, a large black saddle-blotch on the caudal peduncle and a wide "tuning-fork" pattern on forehead. They reach a maximum size of about 100 cm TL and 25 kg. They are late-maturing (between 4-7 years). Unlike most groupers, Nassau groupers are primarily gonochoristic (separate sexes); however protogynous (female to male) hermaphroditism has not been disproved. Nassau grouper are known to assemble in very large numbers (aggregations of a few dozen to 100,000 individuals) at transient, site-specific areas each year to spawn presumably cued by temperature and moon phase. Aside from the spawning season, Nassau grouper are solitary fish. Nassau grouper are ambush suction foragers: they lie and wait for prey and then engulf the organism in a current of water by opening their mouth and quickly dilating their gill covers. Their diet is mostly fish.

Rationale for "Species of Concern" Listing:

Demographic and Diversity Concerns:

Although Nassau grouper are abundant in the Bahamas (they are the most important finfish landed, second only to lobster and conch), the Florida population is considered overfished. The Florida population is likely a separate stock as mixing is unlikely. There is some indication that spawning sites are quite specific and that their destruction or disturbance could negatively impact spawning activity of population(s) that use such sites. In this respect, species like the Nassau grouper, which may depend for their reproduction on highly specific spawning areas, could be severely habitat-restricted, the spawning sites forming significant bottlenecks in their life cycle. The loss of local stocks following the elimination of local spawning aggregations in a number of insular areas (e.g.

Bermuda and Puerto Rico) suggests that some populations are partially self-recruiting, although further genetic studies are necessary to test this hypothesis.

Factors for decline:

Because of their reproductive strategy (aggregate spawners in site-specific areas), Nassau grouper spawning aggregations throughout the Caribbean are often targeted by fishers where many individuals, in reproductive condition, are removed. Anecdotal information indicates that some Nassau grouper spawning aggregations in the Caribbean have been severely reduced in number; however, recent tag returns from sites previously unknown indicate additional aggregation areas. This fishing pressure is not occurring in the U.S., as it is illegal to possess a Nassau grouper in the U.S., and there is no record of any Nassau grouper spawning aggregations in either the GMFMC or SAFMC jurisdictional waters. Hence, conservation efforts in the U.S. would likely benefit the Florida populations as they are likely a separate stock and mixing is unlikely.

Commercial and recreational landings data from 1986-1991 indicate that the Nassau grouper harvest decreased in both pounds landed and average size. As a result of this decrease in yield, the Caribbean (1990), South Atlantic (1991), and the Gulf of Mexico (1996) Fishery Management Councils (FMC), and the State of Florida (1993) prohibited take and possession of Nassau grouper; all three FMCs currently classify them as overfished.

Status Reviews/Research Completed or Underway:

Research during the past several years has yielded much information about their age and growth, spawning ecology, migration patterns, population density, and life history. Their habits, numbers, and life history characteristics in US waters are poorly understood because of their depressed numbers there. Sadovy and Eklund (1999) contains the most complete status review of the species. NMFS funded, via Recover Protected Species funds to SEFSC, numerous Nassau grouper research projects in the 1990s. Research on Nassau grouper and their associated habitats continues to be conducted by NMFS, Recover Protected Species Program, National Undersea Research Center for the Caribbean, South Carolina State University, and the Reef Environmental Education Foundation.

For further information on this Species of Concern, or on the Species of Concern Program in general, please contact Ms. Marta Nammack, NMFS, Office of Protected Resources, 1315 East West Highway, Silver Spring, MD 20910, (301) 713-1401, Marta.Nammack@noaa.gov; Dr. Stephania Bolden, NMFS, Southeast Region, Protected Resources Division, 9721 Executive Center Drive N., St. Petersburg, FL 33702, (727)570-5312, Stephania.Bolden@noaa.gov; or Dr. Anne Marie Eklund, NMFS, Southeast Fisheries Science Center, 75 Virginia Beach Dr., Miami FL 33149 (305) 361-4271 anne.marie.eklund@noaa.gov.

Web Links:

http://www.nmfs.noaa.gov/prot_res/species/fish/nassau_grouper.html

http://www.oar.noaa.gov/spotlite/archive/spot_spawn.html

<http://www.flmnh.ufl.edu/fish/Gallery/Descript/NassauGrouper/NassauGrouper.html>

<http://www.reef.org/data/groupermoon.html>

References:

Bolden, S.K. 2000. Long-distance movement of a Nassau grouper (*Epinepheuls striatus*) to a spawning aggregation in the central Bahamas. Fishery Bulletin U.S. 98: 642-645.

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- Robins, C.R. and G.C. Ray, and J. Douglass. 1986. A field guide to Atlantic coast fishes of North America. Houghton Mifflin Company, Boston, U.S.A.
- Sadovy, Y.J., and P.L. Colin. 1995. Sexual development and sexuality in the Nassau grouper. Journal of Fish Biology 46: 961-976.
- Sadovy, Y.J., and A.M. Eklund. 1999. Synopsis of biological information on *Epinephelus striatus* (Bloch 1792), the Nassau grouper and *E. itajara* (Lichtenstein, 1822) the jewfish. NOAA-NMFS Technical Report 146. 65 pp. <http://spo.nwr.noaa.gov/tr146.pdf>
- Smith, C.L. 1972. A spawning aggregation of Nassau grouper, *Epinephelus striatus* (Bloch). Transactions American Fisheries Society 2: 257-261.